

Notice of Allowability

Application No.

10/663,917

Examiner

Pamela E. Perkins

Applicant(s)

AKATSU ET AL.

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the request for reconsideration on 6 August 2005.
2. ☒ The allowed claim(s) is/are 1-3,6-14,19,26 and 27.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


AMIR ZARABIAN
REGISTERED EXAMINER
U.S. PATENT AND TRADEMARK OFFICE

DETAILED ACTION

This office action is in response to the filing of the request for reconsideration on 6 August 2005. Claims 1-3, 6-14, 19, 26 and 27 are pending.

Response to Arguments

Applicant's arguments, see the paper, filed 6 August 2005, with respect to claims 1-3, 6-14, 19, 26 and 27 have been fully considered and are persuasive. The rejection of claims 1-3, 6-14, 19, 26 and 27 has been withdrawn.

Allowable Subject Matter

Claims 1-3, 6-14, 26 and 27 are allowed.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: prior art does not anticipate, teach, or suggest a method of preparing crystalline wafer including providing a first composite structure comprising a support substrate and a first epitaxial layer that is in a strained state and is associated with one side of the support substrate; relaxing the strained state of the first epitaxial layer of the composite structure to an at least partially relaxed state; creating a region of weakness substantially between the first epitaxial layer and the support substrate; associating a receiving substrate with the first composite structure with the side of the support that includes the first epitaxial layer;

and obtaining a production wafer and a donor wafer by splitting the first composite structure at the region of weakness located therein.

For example, Maa et al. (6,780,796) a method of preparing crystalline wafer where a first composite structure comprises a support substrate and a first epitaxial layer that is in a strained state and is associated with one side of the support substrate; and relaxing the strained state of the first epitaxial layer of the composite structure to an at least partially relaxed state by providing dislocations in a dislocation layer within the first composite structure in a configuration sufficient to relax the first epitaxial layer to a substantially relaxed state. Maa et al. further disclose forming a strained silicon over the epitaxial layer and the support substrate as a semiconductor wafer. However, Mass et al. do not disclose, anticipate, teach, or suggest associating a receiving substrate with the first composite structure with the side of the support that includes the first epitaxial layer; and obtaining a production wafer and a donor wafer by splitting the first composite structure at the region of weakness located therein.

Kub et al. (6,323,108) disclose a method of preparing crystalline wafer where a first composite structure comprises a support substrate and a first epitaxial layer associated with one side of the support substrate; associating a receiving substrate with the first composite structure with the side of the support that includes the first epitaxial layer; and obtaining a production wafer and a donor wafer by splitting the first composite structure at a region of weakness located therein. However, Kub et al. do not disclose, anticipate, teach or suggest relaxing the strained state of the first epitaxial layer of the

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composite structure to an at least partially relaxed state; creating a region of weakness substantially between the first epitaxial layer and the support substrate.

Maa et al. (6,852,652) disclose a method of preparing crystalline wafer including providing a first composite structure comprising a support substrate and a first epitaxial layer that is in a strained state and is associated with one side of the support substrate; relaxing the strained state of the first epitaxial layer of the composite structure to an at least partially relaxed state; creating a region of weakness substantially between the first epitaxial layer and the support substrate; associating a receiving substrate with the first composite structure with the side of the support that includes the first epitaxial layer; and obtaining a production wafer and a donor wafer by splitting the first composite structure at the region of weakness located therein. However, Maa et al. is not considered prior art.

The prior art made of record in this action does not anticipate, teach, or suggest relaxing the strained state of the first epitaxial layer of the composite structure to an at least partially relaxed state; creating a region of weakness substantially between the first epitaxial layer and the support substrate; associating a receiving substrate with the first composite structure with the side of the support that includes the first epitaxial layer; and obtaining a production wafer and a donor wafer by splitting the first composite structure at the region of weakness located therein.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

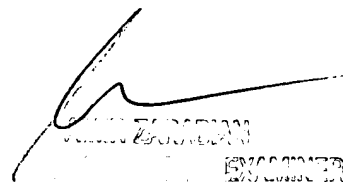
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pamela E. Perkins whose telephone number is (571) 272-1840. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PEP

A handwritten signature in black ink is written over a rectangular official stamp. The stamp contains the text "PAMELA E. PERKINS" and "EXAMINER" in a bold, sans-serif font.